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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,263	06/05/2001	Chung-Hee Chang	146712001800	6049

25227 7590 05/27/2004  
MORRISON & FOERSTER LLP  
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EXAMINER

LETSCHER, GEORGE J

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 05/27/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/873,263

Applicant(s)

CHANG ET AL.

Examiner

George J. Letscher

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) 11-19 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-8, 10, 20 and 21 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 05 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 8 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuda et al (US 5,736,235).

The aforementioned claims recite the following features, inter alia, disclosed in Matsuda et al: A recording device with a head and medium, i.e., disk, the medium having a substrate (1) and magnetic underlayer (2), the soft magnetic underlayer with an easy axis of magnetization transverse to a traveling direction of the head (column 6, lines 45-50) which is a substantially radial or transverse anisotropy; and a return path for the recording head furnished through the layers. The underlayer amplifies a perpendicular component of a write component in a recording layer (3) overlying the underlayer. The underlayer comprises a material selected from the group consisting of a NiFe alloy and a FeAlN alloy (column 2, lines 38-46).

Additionally, Matsuda et al teach the cooperative magnetic bands of the underlayer being 0.1 to about 50 microns (um), the underlayer being in this

range. Matsuda et al disclose a magnetic disk having the disk made by a magnetron sputtering system for forming the layers of the disk, including underlayer (2) and its easy axis; see column 6, lines 26-35 & lines 45-50 of Matsuda et al.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al.

The description of Matsuda et al is in paragraph 2, supra.

Regarding claim 7, Matsuda et al do not teach the underlayer comprising a material selected from the group consisting of a NiFe alloy, CoZrNb alloy and FeAlN alloy. Regarding claim 10, Matsuda et al do not expressly disclose the soft underlayer being about 200-400 um.

Official notice is taken of the fact that NiFe alloy, CoZrNb alloy or FeAlN alloy were notoriously old and well known in the art to have been a magnetic underlayer in a magnetic disk layer arrangement.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have furnished the disk having a disk underlayer as taught in Matsuda et al comprising a material selected from the group consisting of a NiFe alloy, CoZrNb alloy and FeAlN alloy. The rationale is as follows: one of ordinary skill in the art would have been motivated to have furnished the disk having a disk underlayer as taught in Matsuda et al comprising a material selected from the group consisting of a NiFe alloy, CoZrNb alloy and FeAlN alloy since one of ordinary skill in the art recognized that one of these alloys helped reduce noise in the recording medium.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the disk device having cooperative magnetic bands of the underlayer being 0.1 to about 50 microns (um) as taught in Matsuda et al with the soft underlayer being about 200-400 um. The rationale is as follows: one of ordinary skill in the art would have been motivated to have provided the disk device having cooperative magnetic bands of the underlayer being 0.1 to about 50 microns (um) as taught in Matsuda et al with the soft underlayer being about 200-400 um since such a thickness range, absent any criticality (i.e., unobvious and/or expected result(s)), is generally achievable through routine experimentation/optimization, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (CCPA 1955).


Art Unit: 2653

**Conclusion**

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Letscher whose telephone number is (703) 305-7912.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4750.

George Letscher  
May 21, 2004



**George Letscher**  
**Primary Examiner**  
**AU 2653**